Permit to Construct
Soil Vapor Extraction & Treatment System

Company ID: 127568

Company Name ENGINEERED POLYMER SOLUTION, VALSPAR

Mailing Address: 901 W. Union St.
Montebello, CA 90640

Equipment Location: Same as Above

Equipment Description:

A/N 517175

SOIL VAPOR EXTRACTION AND TREATMENT SYSTEM, CONSISTING OF:

1. VAPOR EXTRACTION WELLS.
2. KNOCK- OUT POT, 40-GALLON CAPACITY.
3. EXTRACTION BLOWER, 10-HP, 300 SCFM MAXIMUM.
4. THREE VAPOR-PHASE GRANULAR ACTIVATED CARBON CANISTERS IN SERIES, US FILTER, MODEL NO. VSC-2000, EACH 4'-0" DIA. X 4'-8" H., EACH WITH AT LEAST 2,000 POUNDS OF GRANULAR ACTIVATED CARBON.

A/N 517176

TITLE V PERMIT REVISION, DE MINIMIS SIGNIFICANT

History

Engineered Polymers Solutions (Valspar) filed A/N 517175 on December 14, 2010 as a new construction for installation of a Soil Vapor Extraction System. Valspar is in business of manufacturing paints, lacquers, stains and other coatings at the facility using mixing pots (permitted). During the construction at one of the buildings at the facility, odors were detected and it was determined that the soil subsurface has been contaminated with solvents. The company was instructed by the LA County Fire Dept. to take soil samples and analyzed for VOC and other compounds. VOCs were detected and as a result, the company has proposed to remediate the soil using a Carbon Adsorption system. Initially, they proposed both a Thermal Oxidizer and Carbon Adsorber to remediate the soil but since the

VOC concentrations are not high enough for Thermal Oxidizer to be effective, the company decided to use only Carbon Adsorption system. The maximum concentration of VOC in the soil will not exceed 500 ppmv (as Hexane).

This facility is in the Title V program, A/N 517176 was filed for the Title V permit revision (de minims significant). The latest Title V renewal was issued on April 19, 2007. This application is part of the 3rd Title V permit revision since then. The facility has been operating with a Title V permit since 2001. The facility has been subject to both self-reporting requirements and AQMD inspections. The facility has had no citizen complaints, Notices to Comply, or Notices of Violation issued in the last two years.

Process Description

In the process, underground wells will be used to collect VOCs from soil sub-surface. Contaminated air from collection wells is drawn to a water knock-out pot by a 10-HP vacuum pump. The liquid is drained to a sump to be later disposed offsite. The vapor, up to 300 SCFM, is passing through three granular carbon canisters in series, each with 2000 pounds of granular activated carbon, and with a VOC removal efficiency of at least 99%. Treated air from canisters is released to the atmosphere via a PVC stack. Spent carbon from canisters will be removed and stored in closed 55-gallon drums to be disposed offsite as hazardous materials.

The equipment will be in operation 24 hrs/day, 7 days/week, and 52 weeks/year.

Emission Calculations

The application package submitted by the consultant includes complete list of VOC in the soil (Section 4 of the application package). The measured concentration of all the organics is about 13.44 ppmv. However, the consultant calculated the emissions based on maximum VOC concentration of 500 ppmv. Based on that, the VOC emissions are as follows:

$$R1\left(\frac{lbs}{hr}\right) = \left(\frac{PPMV}{10E06}\right) x \left(\frac{300\ scft}{minute}\right) x \left(\frac{lb}{lbmole}\right) x \left(\frac{lbmole}{379cuft}\right) x \left(\frac{60min}{hr}\right)$$

R1= 500 ppmv x 300 scfm x 86 lb/lb. mole (MW Hexane) x 60 min/hr

1E6 x 379 lb. mole/scfm

R1 = 2.04 lb/hr

R2 = 2.04 x (1-0.99) = 0.02 lb/hr x 24 hrs/day = 0.48 lb/day x 365 days/yr.

= 175 lb/yr

TOXICS EVALUATION

The following table summarizes concentrations of various Toxics compounds that are expected to be present in the influent to the primary carbon filter (from a pilot test conducted by the applicant):

MAXIMUM CONCENTRATION OF INFLUENTS (Based on 500 ppmv)

Chemical Name	*Inlet Ppmv*	*Outlet Ppmv*	*Lb/hr*
1,3 Butadine	*0.5*	*0.005*	*1.27E-03*
Acrolein	*0.11*	*0.0011*	*3.02E-04*
1,1-Dichloroethane	*2.44*	*0.0244*	*1.15E-04*
Carbon Disulfide	*0.04*	*0.0004*	*8.07E-03*
Benzene	*0.66*	*0.0066*	*2.42E-03*
Toluene	*18.83*	*1.8883*	*7.22E-02*
Ethylbenzene	*8.81*	*0.081*	*4.16E-02*
m,p-Xylene	*23.13*	*2.313*	*1.15E-01*
Styrene	*0.02*	*0.0002*	*9.77E-05*
o-Xylene	*94.23*	*9.423*	*4.67E-01*
Napthalene	*0.04*	*0.0004*	*2.25E-04*

The MICR is calculated per attached spreadsheet.

Carbon Filter Evaluation

The proposed carbon filter system consists of three 2000-lb granulated carbon vessels in series. The extracted vapor is vented to the first two (primary) vessels and then to the third (secondary) vessel.

The outlet of the primary vessels will be monitored weekly for Total Organic Compounds (TOC) in ppmv as hexane. The estimated inlet TOC concentration is 500 ppmv. The outlet TOC concentration which will trigger a change out is an estimated concentration use to identify breakthrough. Since the facility is on a weekly monitoring schedule, a low breakthrough concentration (<10ppmv) may result in a violation for operating the Soil Vapor Extraction System while the outlet concentration is exceeded. All breakthrough emissions are vented to the secondary vessel. When the outlet concentration exceeds 5 ppmv as hexane, the system will be manually shut down to replace the carbon in the primary vessel. Prior to the start of the new cycle, the air flow to the carbon vessels will be switched so that the existing secondary vessel will become the primary vessel and the fresh carbon vessel will become the secondary. The spent carbon will be then stored in a sealed container on site, to be later transported to an offsite recycling facility.

Each pound of carbon has an estimated capacity to remove 0.2 lbs VOC. Therefore, it will take the following number of days until the primary vessel is completely saturated for a worst case:

Number of days = $\left[(4000\ lbscarbon) \times \left(\frac{0.2lbsvoc}{lbscarbon}\right)\right] \div \left[\left(2.04\ \frac{lbsvoc}{hr}\right) \times \left(\frac{24hr}{day}\right)\right] = 16.3\ days$

The above worst case assumption will be verified for accuracy during the first month of operation by analyses of samples collected daily at the inlet and outlet of the carbon system.

Risk Assessment

With the inlet concentrations listed above and a control efficiency of 99%, the unit will pass the Tier 2 screening with the following MICRs;

Residential	Commercial
2.27 E-08	7.55 E-08
Pass	Pass

The hazard index of all targeted organs will remain less than 1.0. The actual emissions from this equipment will be less than the estimated value with a control efficiency of 99%. The secondary vessel will remove contaminants to non-detectable levels. The emissions from the primary vessels once breakthrough occurs will continue to be vented to the secondary vessel.

Rule Evaluation

Rule 212(c)(1): This section requires a public notice for all new or modified permit units that may emit air contaminants located within 1,000 feet from the outer boundary of a school.

No public notice is required since no school is located within 1,000 ft from the above site.

Rule 212(c)(2): This section requires a public notice for all new or modified facilities that have facility emission increases exceeding any of the daily maximums as specified by Rule 212(g).

	Daily Emission Increases (lb/dy)					
	ROG	NO_x	PM_{10}	SO_2	CO	Pb
Total R2 Emission Increase	0	0	0	0	0	0
MAX Limit	**30**	**40**	**30**	**60**	**220**	**3**
Exempted from Public Notice	Yes	Yes	Yes	Yes	Yes	yes

No public notice is required since the emission increases are not exceeding the daily maximums.

Rule 212(c) (3): There will be increases in TACs. However, the calculated MICR is less than 1E-6 for both receptors. Therefore, a public notice will not be required.

Rule 212(g)(2): This section requires a public notice for all new or modified sources that have equipment emission increases exceeding any of the daily maximums as specified by Rule 212(g).

	Daily Emission Increases (lb/dy)					
	ROG	NO_x	PM_{10}	SO_2	CO	Pb

Total R2 Emission Increase	0	0	0	0	0	0
MAX Limit	**30**	**40**	**30**	**60**	**220**	**3**
Exempted from Public Notice	No	Yes	Yes	Yes	Yes	yes

Therefore, a public notice is not required pursuant to this section.

Rule 401: Visible emissions are not expected with the proper operation of the equipment.

Rule 402: Nuisance is not expected with the proper operation of the equipment.

Rule 1166: The operation of this equipment is in compliance with District Rule 1166(c) (4) (A) & (B) (i) which reads as follows:

A person treating VOC-contaminated soil shall:

A. Obtain a permit to construct and operate treatment equipment, as applicable, from the Executive Officer, and

B. Implement VOC-contaminated soil decontamination measures, as approved by the Executive Officer in writing, which result in Best Available Control Technology applied during all segments, and which include, but are not limited to, at least one of the following:

    i) Installation and operation of an underground VOC collection system and a disposal system prior to excavation.

Therefore, compliance with this rule is expected.

Rule 1303(a): BACT ROG emissions are vented to three activated carbon drums in series, which are considered BACT for controlling ROG.

Rule 1303(b) (1): MODELING Further air quality modeling analysis will not be needed since the proposed project has no potential to effect emissions of NO_x, CO, and PM_{10}. Therefore, compliance is expected.

Rule 1303(b) (2): OFFSET The proposed project is expected to result only in negligible emission increases of ROG. Therefore, external emission offsets are not needed for this project.

Rule 1401: MICRs, HIAs and HICs at both receptors as calculated in the attached Excel worksheet are less than 1E-6, 1, and 1 respectively, in compliance with Rule 1401.

Regulation XXX:

This facility is not in the RECLAIM program. The proposed project is considered as a "de minims significant permit revision" to the Title V permit for this facility.

Rule 3000(b)(6) defines a "de minims significant permit revision" as any Title V permit revision where the cumulative emission increases of non-RECLAIM pollutants or hazardous air pollutants (HAPs) from these permit revisions during the term of the permit are not greater than any of the emission threshold levels on the following page:

Air Contaminant	Daily Maximum (lbs/day)
HAP	30
VOC	30
NOx	40
PM10	30
SOx	60
CO	220

To determine if a project is considered as a "de minims significant permit revision" for non-RECLAIM pollutants or HAPs, emission increases for non-RECLAIM

pollutants or HAPs resulting from all permit revisions that are made after the issuance of the Title V renewal permit shall be accumulated and compared to the above threshold levels. This proposed project is the 3rd permit revision to the Title V renewal permit issued to this facility on April 19, 2007. The following table summarizes the cumulative emission increases resulting from all permit revisions since the Title V renewal permit was issued.

Title V Permit Revisions Summary

	Revision	HAP	VOC	NO_x	PM_{10}	SO_x	CO
Previous Revisions	Change of Conditions for existing spraybooths and baghouses & Installation of Tanks Washing system (a/no. 475610).	0	0	0	0	0	0
3rd	Permit Revision: Installation of Soil Vapor Extraction system (a/no. 517175).	0	0	0	0	0	0
Cumulative Total		0	0	0	0	0	0
Maximum Daily		30	30	40	30	60	220

Since the cumulative emission increases resulting from all permit revisions are not greater than any of the emission threshold levels, this proposed project is considered as a "de minims significant permit revision".

CONCLUSION:

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a "de minims significant permit revision", it is exempt from the public participation requirements under Rule 3006 (b). A proposed facility permit incorporating this permit revision will be submitted to EPA for a 45-day review pursuant to Rule 3003(j). If EPA does not

have any objections within the review period, a revised Title V permit will be issued to this facility.

Recommendation:
A Permit to construct is recommended for application number 517175 subject to the following conditions:

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THE TOTAL ORGANIC COMPOUND (TOC) CONCENTRATION SHALL BE MEASURED AT THE OUTLET OF THE SECOND CARBON VESSEL (SEQUENCED IN THE DIRECTION OF FLOW). THE MEASUREMENTS SHALL BE PERFORMED WITH A DISTRICT APPROVED HANDHELD ORGANIC VAPOR ANALYZER (OVA) ON A WEEKLY BASIS. THE ANALYZER SHALL BE MAINTAINED AND CALIBRATED ACCORDING TO EPA METHOD 21 REQUIREMENTS. THE ANALYZER SHALL BE CALIBRATED IN PARTS PER MILLION BY VOLUME OF HEXANE, OR, IF ANOTHER CALIBRATING AGENT IS USED, IT SHALL BE CORRELATED TO AND EXPRESSED AS HEXANE.

4. THE SOIL VAPOR EXTRACTION AND TREATMENT SYSTEM SHALL BE SHUT DOWN WHEN THE TOC CONCENTATION AT THE OUTLET OF THE SECOND CARBON VESSEL EXCEEDS 5.0 PPMV MEASURED AS HEXANE.

5. WHENEVER THE TOC CONCENTRATION, MEASURED AS HEXANE, AT THE OUTLET OF THE SECOND CARBON VESSEL (SEQUENCED IN THE DIRECTION OF FLOW) EXCEEDS THE CONCENTRATION AS STATED IN CONDITION NO. 4, THE SYSTEM SHALL BE SHUT DOWN UNTIL THE SPENT CARBON VESSEL IS REPLACED OR REPLENISHED AS FOLLOWS:

   A. THE PRIMARY VESSEL SHALL BE REPLACED OR REPLENISHED WITH FRESH ACTIVATED CARBON. AFTER THE NEW CARBON CANISTER IS INSTALLED, IT SHALL BECOME THE LAST CARBON CANISTER IN SERIES. THE PREVIOUS SEQUENCING OF THE REMAINING CARBON CANISTERS SHALL REMAIN THE SAME.

B. THE ACTIVATED CARBON USED IN THE CARBON VESSELS SHALL HAVE A BUTANE ACTIVITY NUMBER OF NOT LESS THAN 23.5 AS MEASURED BY ASTM METHOD 5742 OR A CTC NO. NOT LESS THAN 60% AS MEASURED BY ASTM METHOD D3467.

6. A THERMOCOUPLE OR OTHER TEMPERATURE MEASURING DEVICE SHALL BE INSTALLED TO CONTINUOUSLY MEASURE AND RECORD THE TEMPERATURE OF THE VAPOR STREAM AT THE INLET TO THE PRIMARY CARBON VESSEL. THIS TEMPERATURE SHALL NOT EXCEED 120 DEGREES FAHRENHEIT.

7. A FLOW INDICATOR SHALL BE INSTALLED AND MAINTAINED AT THE INLET TO THE CARBON ADSORPTION SYSTEM TO MEASURE THE TOTAL AIR FLOW RATE THROUGH THE CARBON ADSORBERS IN CUBIC FEET PER MINUTE (CFM). IF A PRESSURE SENSOR DEVICE IS USED IN PLACE OF THE FLOW INDICATOR, A CONVERSION CHART SHALL BE MADE AVAILABLE TO INDICATE THE FLOW RATE IN CFM CORRESPONDING TO THE PRESSURE READING. THE FLOW RATE SHALL NOT EXCEED 300 SCFM AND SHALL BE MEASURED AND RECORDED AT LEAST ONCE A WEEK.

8. VAPORS SHALL NOT BE EXTRACTED FROM THE SOIL UNLESS THEY ARE VENTED TO THE CARBON ADSORPTION SYSTEM AS DESCRIBED IN THE EQUIPMENT DESCRIPTION. THE EXTRACTION AND CARBON ADSORPTION SYSTEM SHALL BE LEAK FREE BETWEEN THE OUTLET OF THE BLOWER AND THE OUTLET OF THE ADSORPTION SYSTEM.

9. SAMPLES SHALL BE COLLECTED AND ANALYZED ONCE A DAY AFTER THE FIRST 10 DAYS OF OPERATION FOR TWENTY (20) DAYS. SAMPLES SHALL BE ANALYZED FOR TOTAL ORGANIC COMPOUNDS (TOC) AND SPECIATED NON-METHANE ORGANIC COMPOUNDS AS FOLLOWS:

   A. SAMPLES SHALL BE COLLECTED AT THE INLET TO THE FIRST CARBON VESSEL AND OUTLET OF THE SECOND CARBON VESSEL.

   B. SAMPLING AND ANALYSIS SHALL BE CONDUCTED BY AN INDEPENDENT LABORATORY PER RULE 304.

   C. SAMPLING SHALL CONFORM TO CARB METHOD 422 OR EQUIVALENT. SAMPLES WITH HIGH MOISTURE SHALL BE COLLECTED USING AN APPROPRIATE METHOD SUCH AS SCAQMD METHOD 25.1/25.3 OR OTHER METHODS APPROVED BY SCAQMD.

D. ANALYSIS SHALL BE CONDUCTED USING EPA METHOD TO-15 OR OTHER METHOD APPROVED BY SCAQMD.

10. SAMPLES SHALL BE COLLECTED AND ANALYZED ONCE PER MONTH AFTER THE FIRST THIRTY (30) DAYS OF OPERATION FOR TOTAL ORGANIC COMPOUNDS AND SPECIATED FOR COMPOUNDS LISTED UNDER CONDITION NO. 12 AND OTHER TOXIC COMPOUNDS PRESENT AS FOLLOWS:

    A. SAMPLES SHALL BE COLLECTED AT THE INLET OF THE FIRST CARBON VESSEL AND THE OUTLET OF THE SECOND CARBON VESSEL.

    B. SAMPLING AND ANALYSIS SHALL BE CONDUCTED BY AN INDEPENDENT LABORATORY PER RULE 304.

    C. SAMPLING SHALL CONFORM TO CARB METHOD 422 OR EQUIVALENT. SAMPLES WITH HIGH MOISTURE SHALL BE COLLECTED USING AN APPROPIATE METHOD SUCH AS SCAQMD METHOD 25.1/25.3 OR OTHER METHODS APPROVED BY SCAQMD.

    D. ANALYSIS SHALL BE CONDUCTED USING EPA METHOD TO-15 OR OTHER METHOD APPROVED BY SCAQMD.

11. VAPORS EXTRACTED OR TREATED BY THIS EQUIPMENT SHALL NOT CONTAIN ANY TOXIC AIR CONTAMINANTS AS IDENTIFIED IN RULE 1401, TABLE 1 WITH AN EFFECTIVE DATE OF SEPTEMBER 10, 2010 OR EARLIER WITH THE EXCEPTION OF 1, 3 BUTADIENE, (CAS 106-99-0), ACROLEIN (CAS 107-02-8), CARBON DISULFIDE (CAS 75-15-0), 1, 1, DICHLORO ETHANE (CAS 75-34-3) , BENZENE (CAS 71-43-2), TOULENE (CAS 108-88-3), ETHYLBENZENE (100-41-4), XYLENES- ISOMERS AND MIXTURE (CAS 1330-20-7), NAPHTHALENE (CAS 91-20-3), AND STYRENE (CAS 100-42-5).

12. SPENT CARBON REMOVED FROM THE SYSTEM SHALL BE MAINTAINED OR STORED IN CLOSED CONTAINERS PRIOR TO REMOVAL FROM THE SITE.

13. THE OPERATOR SHALL SUBMIT TO THE DISTRICT IN WRITTING THE RESULTS OF THE FIRST MONTH OF OPERATING RECORDS, INCLUDING BUT NOT LIMITED TO MONITORING, LAB ANALYSIS, FLOW, AND TEMPERATURE

READINGS, ETC. TO PROVE COMPLIANCE WITH THE CONDITIONS OF THIS PERMIT. SUBMITTAL SHALL BE WITHIN 45 DAYS OF START-UP.

14. ALL RECORDS REQUIRED TO DEMONSTRATE COMPLIANCE WITH THE CONDITIONS OF THIS PERMIT SHALL BE MAINTAINED IN A FORMAT ACCEPTABLE TO THE DISTRICT FOR A MINIMUM OF TWO YEARS AND SHALL BE MADE AVAILABLE TO THE DISTRICT PERSONNEL UPON REQUEST.

14. UPON COMPLETION, THE VAPOR EXTRACTION WELLS AND DUCTS SHALL BE CAPPED TO PREVENT VAPORS FROM VENTING TO THE ATMOSPHERE.